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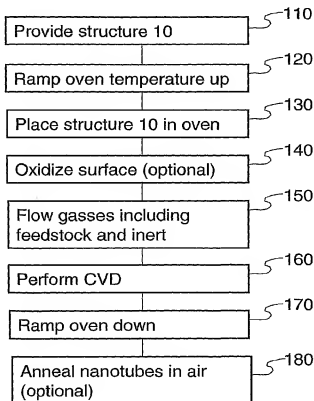
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(54) Title: METHODS OF USING THIN METAL LAYERS TO MAKE CARBON NANOTUBE FILMS, LAYERS, FABRICS, RIBBONS, ELEMENTS AND ARTICLES



(57) Abstract: Methods of using thin metal layers to make Carbon Nanotube Films, Layers, Fabrics, Ribbons, Elements, and Articles are disclosed. Carbon nanotube growth catalyst is applied onto a surface of a substrate, including one or more thin layers of metal. The substrate is subjected to a chemical vapor deposition (160) of a carbon-containing gas to grow a non-woven fabric of carbon nanotubes. Portions of the non-woven fabric are selectively removed according to a defined pattern to create the article. A non-woven fabric of carbon nanotubes may be made by applying carbon nanotube growth catalyst onto a surface of a wafer substrate to create a dispersed monolayer of catalyst. The substrate is subjected to a chemical vapor deposition of a carbon-containing gas to grow a non-woven fabric of carbon nanotubes in contact and covering the surface of the wafer and in which the fabric has a substantially uniform density.













































































































































































